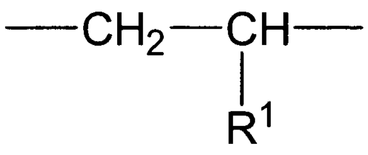
REMARKS

This is in response to the Office Action that was mailed on May 2, 2005. The recitation of claim 2 is incorporated into claim 1, and claim 2 is cancelled without prejudice. Claim 1 is also amended based upon such disclosure as that in lines 4-8 on page 13 of the specification. No new matter is introduced by this Amendment. Claims 1 and 3-8 are pending in the application.

THE INVENTION. The present invention provides a branched olefin copolymer that comprises two "building blocks" – one of which is represented by formula (1) and another of which is represented by formula (2):



$$-CH_2-\underset{R^1}{\underset{|}{CH}}-$$

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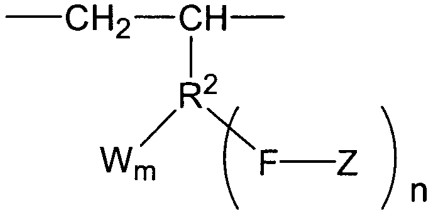

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In formula (2), R^2 represents a C_{1-18} linear or branched aliphatic or aromatic hydrocarbon group. The numeric variable "n" is an integer of 1 to 3, and F represents a heteroatom or a heteroatom-containing linking group and Z represents a polymer segment containing at least an oxygen atom, a nitrogen atom, a halogen atom, or an aryl group and having a molecular-weight distribution of 1 to 3. The numeric variable "m" is 0, 1, or 2, and W represents an alcoholic hydroxyl group, a phenolic hydroxyl group, a carboxylic acid group, a carboxylate group, an acid anhydride group, an amino group, an epoxy group, a siloxy group, or a mercapto group. The polymers of this invention are characterized by improved adhesion to or compatiblility with metals or polar resins. Specification, page 4, first full paragraph.

Claims 1-8 were rejected under 35 U.S.C. §102(b) as being anticipated by US 6,127,481 (Janssen). The rejection is respectfully traversed.

The present invention involves a branched olefin copolymer defined in claim 1. Important differences between the branched olefin copolymer of the present invention and the polyolefin disclosed in Janssen are present in the "polymer backbone" of the respective branched polyolefins. In the present invention, the polymer backbone has a recurring unit [A] represented by the formula $–CH_2-CH(R^1)-$ and a recurring unit [B] represented by the formula $–CH_2-CH(R^2)-$. R^1 represents a hydrogen atom of a C_{1-18} linear or branched aliphatic hydrocarbon group and R^2 represents a C_{1-18} linear or branched aliphatic or aromatic hydrocarbon group. Therefore the polymer backbone of the present invention is essentially consisted of carbon atoms and hydrogen atoms. In contrast, the polymer backbone of Janssen is selected from homo- and copolymers of polyhydrosilane, as defined in Janssen claim 1. Accordingly, the polymer backbone of Janssen always contains a silicon atom. This represents a fundamental distinction between the two technologies.

The Examiner's attention is also respectfully directed to the following considerations: A very significant difference between the branched olefin copolymers of the present invention and the polyolefins disclosed by Janssen relates to the definition of the "arm-structure" in the branched polyolefins. In the present invention, the arm depicted as "Z" in formula (2) is a polymer segment consisting of a monomer comprising a carbon-carbon double-bond containing moiety containing at least one feature selected from ***an oxygen atom, a nitrogen atom, a***

halogen atom, and an aryl group. In contrast, the corresponding arms in Janssen are copolymers of ethylene with propylene.

> The branched polyolefin polymers of the present invention rely on chemical reactions which afford the coupling or linking together of polyolefin prearms into combs, stars, nanogels or structural combinations thereof. Branched polyolefin polymer compositions of the present invention result from either a coupling reaction between a reactive polymeric backbone containing functionality capable of reaction with a polyolefin prearm or a polymerization reaction between polyolefin prearms derivatized for such polymerization reaction. By polyolefin prearm is meant a polyolefin polymer containing a carbon to carbon double bond in ***a terminating monomer unit*** or a polyolefin polymer ***derivatized, preferably at its terminus, so that it can react*** with a functional polymer or a difunctional polymerizable monomer. Column 3, lines 51-63 (emphasis supplied).

The prearms disclosed by Janssen are aliphatic groups that consist of carbon atoms and hydrogen atoms only. They do not contain heteroatoms and aryl groups.

In the paragraph bridging pages 2-3 of the Office Action, the Examiner argues that Janssen teaches "that the polyolefin prearms are functionalized". It is true that they are functionalized or derivatized, but only so that they can take place in the polymerization reaction that forms the polymer. As stated by Janssen: "By polyolefin prearm is meant a polyolefin polymer containing a carbon to carbon double bond in ***a terminating monomer unit*** or a polyolefin polymer ***derivatized, ... at its terminus, so that it can react*** with a functional polymer or a difunctional polymerizable monomer". Once the prearm reacts and becomes a part of the polymer, it no longer bears the functional groups that were added to it "so that it can react with a functional polymer or a difunctional polymerizable monomer". The Examiner even refers to disclosure in the Janssen patent – of "examples of functional groups introduced to the polyolefin prearm to effect coupling" – which confirms the above-described transitory nature of the functional groups taught by Janssen. In contrast, the branched "prearms" in the present invention contain the recited functional groups ***even after they become part of the polymer***.

Moreover – in addition to the technical analyses set forth above – it is noted that the Examiner is relying only upon generic disclosure in stating this rejection. The Examiner has failed to identify any specifically disclosed polymer in Janssen that allegedly falls within the scope of the present claims. Anticipation is not made out by a hindsight selection based on an applicant's disclosure of variables of a broad generic disclosure. *In re Ruschig*, 145 USPQ 274. There can be no anticipation where one skilled in the art would have to choose judiciously from a genus of possible combinations to obtain the claimed invention. *In re Sivaramakrishnan*, 213 USPQ 441.

The Janssen disclosure neither teaches nor suggests the presently claimed branched olefin copolymers. Accordingly, withdrawal of the rejection over Janssen is respectfully solicited.

Claims 1-8 were rejected on the ground of obviousness-type double patenting over claims 1-10 of US 6,753,378 B2 (Kojoh). The rejection is respectfully traversed.

A very significant difference between the branched olefin copolymer of the present invention and the polyolefin disclosed by Kojoh relates to the definition of the "arm-structure" in the branched polyolefin. In the present invention, the arm depicted as "Z" in formula (2) is a polymer segment consisting of a monomer comprising a carbon-carbon double-bond containing moiety containing at least one feature selected from ***an oxygen atom, a nitrogen atom, a halogen atom, and an aryl group***. In Kojoh, the corresponding arms are olefin chains.

Claim 1 of the Kojoh patent recites that "the olefin chain (B) is linked to ... the olefin chain (A) through a bond having a carbonyl group". Thus, olefin chain (B) does not have a pendant carbonyl group in the position of substituents F, Z, or W in the present invention. Comparing the Kojoh reference to Formula (2) herein, the Kojoh carbonyl group would be located between R^2 and the –CH- group to which it is attached. The ***arms*** of the copolymer claimed in the Kojoh patent are aliphatic groups that consist of carbon atoms and hydrogen atoms only. They contain no heteroatoms and no aryl groups.

Moreover, the claims herein have now been amended. In amended claim 1 of the present application, Z represents a polymer segment consisting of a monomer comprising a carbon-carbon double bond-containing moiety containing at least one member selected from the group consisting of an oxygen atom, a nitrogen atom, a halogen atom, and an aryl group. This completely excludes the branched polyolefins disclosed in US 6,753,378 B2. While the carbonyl group in US 6,753,378 B2 may correspond to "F" of the present invention, the olefin chain (B) therein does not correspond to "Z" of the present invention. A carbon-carbon double bond-containing compound (= olefin) containing at least an oxygen atom, a nitrogen atom, a halogen atom, or an aryl group is neither taught nor suggested by US 6,753,378 B2. See lines 24-42 in column 3 therein. In the present invention, heteroatoms are regularly incorporated or disposed in "Z".

Claims 1-10 of the Kojoh patent neither teach nor suggest the presently claimed branched olefin copolymers. Accordingly, withdrawal of the double patenting rejection over the Kojoh patent is respectfully solicited.

Claims 1-8 were rejected under 35 U.S.C. §103(a) as being unpatentable over US 6,753,378 B2. The rejection is respectfully traversed, on the ground that US 6,753,378 B2 is disqualified under 35 U.S.C. §103(c) as prior art.

COMMON OWNERSHIP. The invention of Application Serial No. 10/681,181 (the present application) and Application Serial No. 10/129,843 (US 6,753,378 B2) were, at the time the invention of Application Serial No. 10/681,181 was made, owned by the identical entity, Mitsui Chemicals, Inc., of Tokyo, Japan.

Accordingly, withdrawal of this ground of rejection is respectfully solicited.

Applicants sincerely believe that withdrawal of the rejections of record and passage of this application to Issue is in order.

Should there be any questions concerning this application, the Examiner is invited to telephone Richard Gallagher (Reg. No. 28,781) at (703) 205-8008.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Dated: July 22, 2005

Respectfully submitted,

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